

RNC group at LBNL + UCB group

STAR; ALICE; STAR and ALICE; STAR and sPHENIX:

Career Staff:

Xin Dong
Leo Greiner
Barbara Jacak (UCB)
Peter Jacobs
Spencer Klein
Yuan Mei
Grazyna Odyniec
Mateusz Ploskon
Jeff Porter
Ernst Sichtermann
Jim Thomas
Nu Xu

Active on EIC:

9 staff
3 postdocs
3 grad students
2 undergrads

Project Scientist:

Nicole Apadula
Yue Shi Lai

Research Assistants:

Winston DeGraw
Mihai Popescu
Sergiu Weis

Postdocs:

Preeti Dhanker (UCB from April 2020)
Alberto Collu
Matthew Kelsey
Yue-Hang Leung
Guannan Xie
James Mulligan (postdoc, UCB)
Sooraj Radhakrishnan
Hanseul Oh (from March)
Reynier Cruz Torres (from April)

Graduate Students:

Dhruv Dixit (UCB)
Alwina Liu (UCB)
Fernando Torales-Acosta (UCB)
Ezra Lesser (UCB)
Yue Liang
Yuanjing Ji
Xinyue Ju
Zhenzhen Yang
Samuel Heppelmann (UCD)

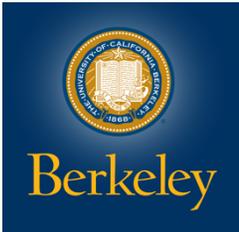
Undergrad students:

Youqi Song (UCB)
Charlie Cummings (UCB)
Stuti Raizada (UCB)
Danny Geisz (UCB)



California Consortium

Build part of EIC detector in California! Focus on jets, tracking, calorimetry



+ *Jacak DOE Distinguished Scientists Fellow Award*

UC MRPI funding for 1/2 student per campus per year + workshops

Work is underway!

UCB: jet probes of gluon matter (arXiv:1912.05931)

UCR: calorimetry R&D/tests at STAR & jet fast simulations

UCLA: Hcal R&D/tests at STAR

UCD: Forward physics, collaborating on eSTARlight with Klein @ LBNL

LLNL & LANL collaborating on simulations



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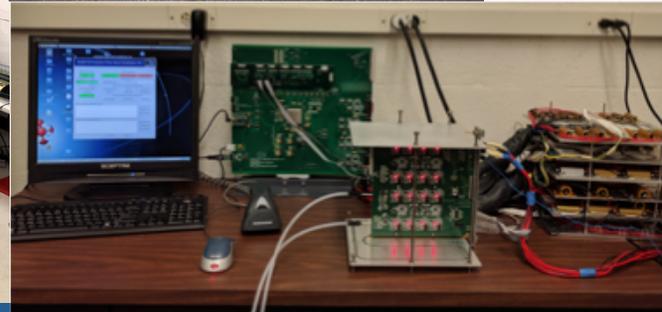
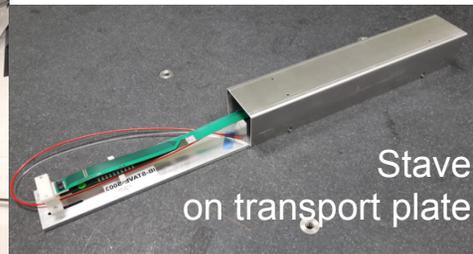
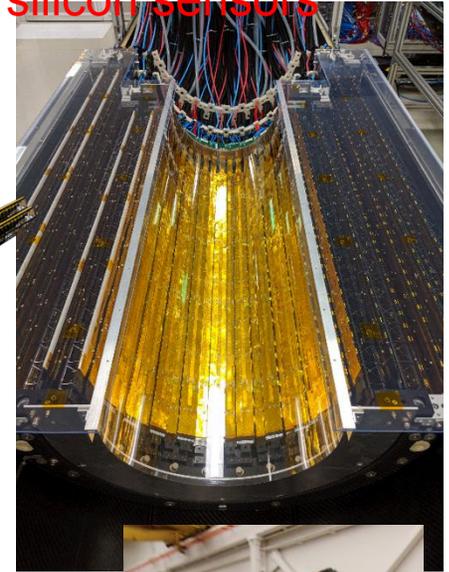
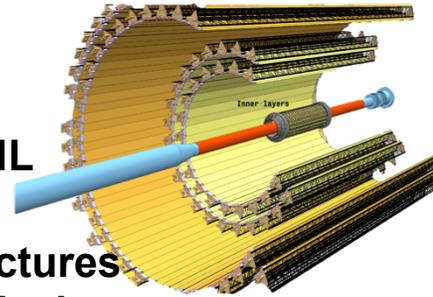
Nuclear Science

Interest: silicon vertex & tracking

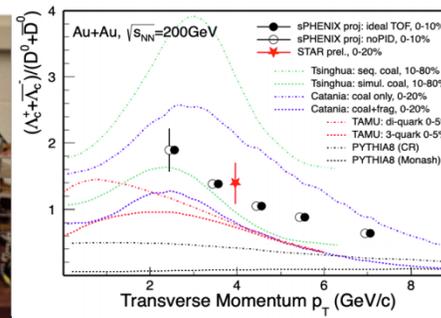
Upgrade of the ALICE Inner Tracking System using 10 m² of MAPS silicon sensors

LBLN responsibilities, UCB collaborates:

- Middle Layers (# 3, 4) assembly and testing at LBNL
- Power System Design and Fabrication
- Carbon fiber composite support and services structures
- Database design, commissioning, operations, analysis...



sPHENIX MVTX:
 Detector assembly
 Carbon fiber supports
 Power system
 Commissioning, heavy
 flavor physics...



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Contributions toward EIC silicon tracker

RNC/LBNL joins new Si detector development at CERN (for ALICE)
 – planned sensor meets present requirements of an EIC tracker

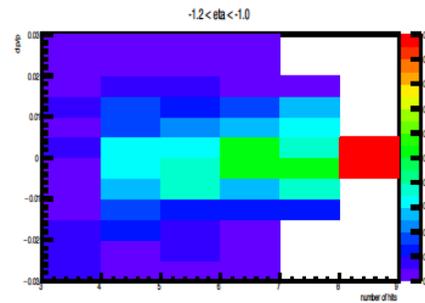
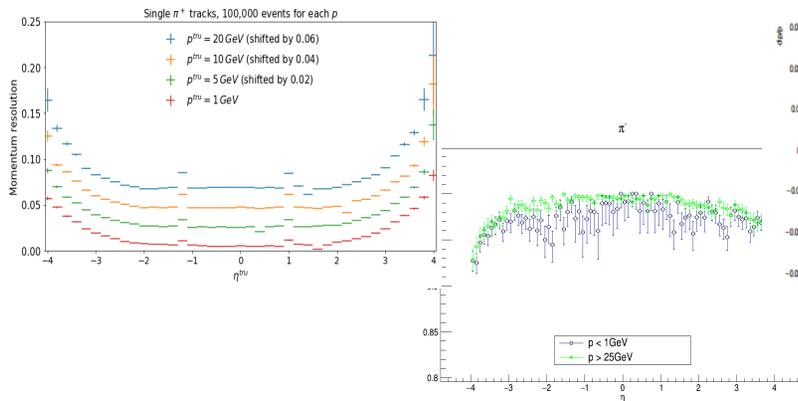
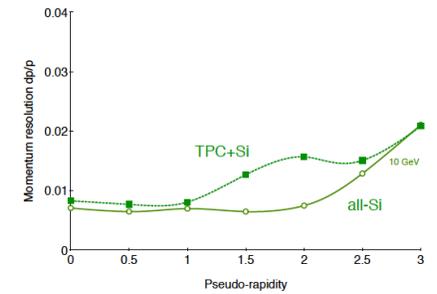
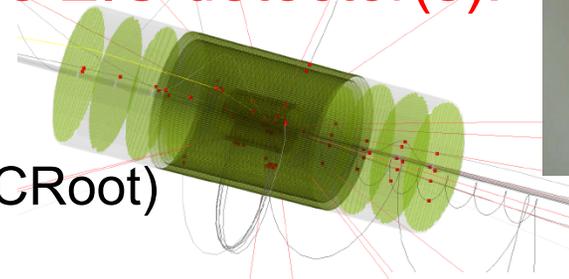
→ direct application to the future EIC detector(s)!

Simulations underway:

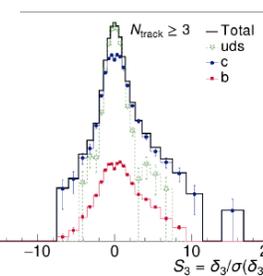
- Silicon tracker performance (eRD16)
 full detector simulation $\delta p/p$, eff (fast & EICRoot)
 now implementing in Fun4all
- DIS jet production and kinematics (Pythia level)
- Genfit/Rave vs. ACTS

To study: optimization of barrel-forward layout

- all-Si and hybrid (Si+TPC) tracker concepts



20 x 20 μm pixels



10 x 10 μm pixels

